

DOCUMENT RESUME

ED 151 390

TM 006 848

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TITLE The National Longitudinal Study: Design and Preliminary Results.
PUB DATE [7']
NOTE 251.
EDRS PRICE MF-\$0.83 HC-\$1.67 Plus Postage.
DESCRIPTORS Academic Ability; *Data Analysis; *Data Collection; Data Processing; Differences; Educational Development; Followup Studies; Geographic Regions; Goal Orientation; *Graduate Surveys; High School Curriculum; *High School Graduates; Individual Development; *Longitudinal Studies; National Surveys; Performance Factors; Personal Values; Questionnaires; Racial Differences; Regional Characteristics; *Research Design; Sampling; Senior High Schools; Sex Differences; Socioeconomic Influences; Student Financial Aid; Vocational Development; Youth Life Goals; *National Longitudinal Study High School Class 1972
IDENTIFIERS

ABSTRACT

The National Longitudinal Study of the High School Class of 1972 was initiated in the spring of 1972. A national probability sample of 18,000 students from 1,070 schools completed a Student Questionnaire dealing with factors related to personal and family background, educational and work experiences, plans, aspirations, attitudes, and opinions. They also were administered tests of verbal and nonverbal ability, and data were obtained from a student's School Record Information Form. The First Follow-Up questionnaire was mailed to potential respondents in the fall of 1973. In the preliminary analysis of results, six basic classification variables were used to define subpopulations: sex, high school program, race, geographical region, ability, and socioeconomic status. Preliminary results for these subgroups are reported in terms of spring 1972 plans versus October 1972 activities, and October 1972 activities versus October 1973 activities. A path analysis model involving student financial aid is presented to illustrate the evaluation of a factor's impact. (BW)

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ED151390

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THE NATIONAL LONGITUDINAL STUDY
DESIGN AND PRELIMINARY RESULTS

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I. BACKGROUND

In 1968, the National Center for Education Statistics (NCES) conducted a survey to determine the specific data needs of educational policymakers and researchers. Respondents to the survey expressed a need for data that would allow comparisons of student educational experiences with later outcomes. This finding provided the impetus for NCES to begin planning for the first of an intended series of National Longitudinal Studies of Educational Effects.

In April 1970, a number of prominent educational researchers and administrators met with interested Federal officials in Washington, D. C. The resulting National Longitudinal Study of the High School Class of 1972 (NLS) reflected their guidance and the interests of a number of USOE bureaus, including the Office of Planning, Budgeting, and Evaluation; the Bureau of Postsecondary Education; the Bureau of Occupational and Adult Education; the Bureau of Programs for the Handicapped; as well as the National Center for Education Statistics. Four advisory committees provided guidance in the planning and implementation of the survey. One committee was composed of research experts and representatives of various educational organizations; two others were made up of officials of state education agencies; and the fourth, an internal USOE users committee, represented the data needs of the various offices and bureaus of the U. S. Department of Health, Education, and Welfare (DHEW) and USOE.

The primary purpose of the NLS is to discover what happens to young people after they leave high school, as determined by their subsequent educational and vocational activities, plans, aspirations, and attitudes, and to relate this information to their prior educational experiences and personal and biographical characteristics. Ultimately, the study will help to gain a better understanding of the development of students as they pass through the American educational system, and of the complexity of factors associated with individual educational and career outcomes. Such information is essential as a basis for effective planning, implementation, and evaluation of Federal policies and programs

designed to enhance educational opportunity and achievement and to upgrade occupational attainments and career outcomes.

Following a rather extensive period of planning, which included the design and field test of survey instrumentation and procedures, the full-scale survey was initiated in the spring of 1972. A national probability sample of about 18,000 seniors from over 1,000 public, private, and church-affiliated high schools participated in the base-year survey.

The first follow-up data collection effort began in October 1973 and was completed about March 1974. Its primary purpose was to obtain information about the participants' basic educational and work activities one and one-half years after high school graduation, and their continuing or revised plans, aspirations, and attitudes. Added to the base-year participants were 1972 graduates from about 250 additional schools which had been unable to participate, bringing the total sample up to about 22,000.

Current planning calls for three more follow-up surveys under the NLS program over the next four to six years. The Second Follow-Up Survey began in October 1974 and is currently in progress. Also underway is the design of a new cohort study, the NLS of the High School Class of 1978. The potential uses for the information being gathered by these studies are great; the broad data base accumulated over time will fill a widespread need on the part of educational researchers and administrators for information on the flow of young adults through the postsecondary occupational-educational system. It will provide insight into identifying and understanding the major branching or decision points that affect the educational and life patterns of individuals in the period following secondary school. Important linkages or path choices can be traced, estimates of the associated transition probabilities provided, and insight afforded into the relative importance of the factors which determine or otherwise affect these transition probabilities.

II. THE SAMPLE

The sample design may be described as a deeply stratified two-stage probability sample with schools as first-stage sampling units and students as second-stage units. The population consisted of all 1972 twelfth graders enrolled in all public and private schools in the 50 States and the District of Columbia. The first-stage sampling frame was constructed from computerized school files maintained by the Office of Education and by the National Catholic Education Association.

The school sampling frame was stratified into 600 final strata based on the following variables:

- Type of control (public or nonpublic)
- Geographic region (Northeast, North Central, South, and West)
- Grade 12 enrollment (less than 300, 300 to 599, and 600 or more)
- Proximity to institutions of higher learning
- Percent minority group enrollment
- Income level of the community
- Degree of urbanization.

In order to increase the number of disadvantaged students in the sample, schools located in low-income areas and schools with high proportions of minority group enrollments were sampled at approximately twice the sampling rate used for the remaining schools. Schools in the smallest grade 12 enrollment strata (less than 300 seniors) were selected with probabilities proportional to their estimated numbers of senior students and without replacement. Schools in the remaining strata were selected with equal probabilities and without replacement. Within each final stratum, four schools were selected initially and then two of the four were randomly selected and designated as the primary selections. The other two schools were retained as back-up or substitute selections, used in the sample only if one or both of the primary schools did not cooperate. Samples of 18 students per school were selected and five additional students were selected as alternates. The students were sampled with equal probabilities and without replacement, within schools.

The sample design involved 1,200 primary sample schools and 21,600 students (18 per school). Of the 1,200 primary sample schools, 949

participated in the Base-Year Survey, 21 had no senior students enrolled and 230 either refused to participate or could not participate due to the fact that the request was received too late in the school year. However, 121 back-up schools participated bringing the total number of participating base-year schools to 1,070 and a total of approximately 18,000 respondents who provided base-year information.

Due to the fact that some schools could not respond in the Base-Year Survey, further attempts were made to secure participation of the 230 non-participant primary sample schools. This "resurvey" activity, performed during the First Follow-Up Survey, involved securing school cooperation and selecting samples of up to 18 former students (1972 seniors) per school. The "resurvey" activities were successful in 204 of the 230 primary sample schools; thus, students from 1,153 of the 1,200 primary sample schools were included in the First Follow-Up Survey. Adding 131 back-up schools and 16 sample augmentation schools increased the total number of participant schools to 1,300. Respondents to the First Follow-Up returned 21,350 First Follow-Up Questionnaires.

III. INSTRUMENTS

A. Base-Year Instrumentation

Each student in the sample was asked to complete a Student Questionnaire containing 104 questions distributed over 11 major sections. The Base-Year Student Questionnaire dealt with factors related to the student's personal-family background, educational and work experiences, plans, aspirations, attitudes, and opinions.

In addition to the Student Questionnaire, each student was asked to take a 69-minute Test Battery measuring both verbal and nonverbal ability. The test battery consisted of six tests which will be described later in this paper.

Base-year data were also obtained from a student's School Record Information Form (SRIF). Items on the SRIF pertained to the student's high school curriculum, grade-point average, credit hours in major

courses, and, if applicable, his or her position in ability groupings, participation in remedial programs, involvement in certain federally supported programs, and scores on standardized tests.

The administration of a School Questionnaire and a Counselor Questionnaire to the appropriate school staff completed the base-year data collection from each participating high school. These two instruments were designed to collect detailed data on teacher, school, and counselor characteristics.

B. First Follow-Up Instrumentation

Two forms (A and B) of a First Follow-Up Questionnaire were developed and designed for self-administration by the student. Form A of the First Follow-Up Questionnaire was mailed to each sample member who responded to the Base-Year Questionnaire. Seniors from the high school class of 1972 who were unable to participate in the Base-Year Survey (usually because of time and scheduling considerations) were mailed Form B of the questionnaire. Questions 1-85 were identical on both questionnaire forms, and dealt with information concerning the respondent's activity state (e.g., education, work, etc.) in October 1972 and October 1973; his or her socioeconomic status; work and educational experiences since leaving high school; and future educational and career plans, aspirations, and expectations. Form B of the First Follow-Up Questionnaire contained an additional 14 questions to take the place of missing base-year information.

Most of the questions on the Base-Year and First Follow-Up Questionnaires were of the forced-choice type. Open-ended, or free-response, questions were limited to questions involving dates, income, number of hours or weeks worked, and the like. All questions were carefully constructed and formatted by specialists in instrument design and extensively field tested.

IV. DATA COLLECTION PROCEDURES

A. Base-Year Data Collection

The bulk of the student data was collected in April, May, and June 1972 through group administration in each school by local school-based

survey administrators. They also completed School Record Information Forms (SRIF's) for each participating student, and administered the School and Counselor Questionnaires.

B. First Follow-Up Data Collection

The first step in data collection for first follow-up involved an extensive tracing operation to update name and address files. The major mailout of over 22,000 First Follow-Up Questionnaires to the last known addresses of potential respondents was made on 23-24 October 1973. This was followed by a planned sequence of reminder postcards, additional questionnaire mailings, and reminder mailgrams to non-respondents. Active mail return efforts continued through December 1973; and by early January 1974, the questionnaire return rate by mail was 62 percent.

The names and addresses of over 8,000 sample members who failed to mail back their questionnaires were then turned over to the Bureau of the Census for personal interview in accordance with a Bureau contract with the U. S. Office of Education. This personal interview phase of first follow-up data collection continued through March 1974, at which time the overall response rate was increased to 94 percent.

V. DATA PROCESSING

The data were manually edited and then keyed to tape after which they were extensively machine edited. The editing process was extremely complex and comprehensive. The editing rules had to reflect the complexity of the instruments in terms of, for example, skip patterns within the questionnaires. In addition, hard copy resolution was conducted whenever possible in order to resolve problems in the data file. The underlying logic of the whole editing process was to create a data file that was as faithful to the hard copy as possible. Some "cleaning" of the data file is still continuing.

The preliminary results presented here should be interpreted as highly tentative. The results are based upon unweighted tabulations.

Analyses utilizing the sample weights could change some of the findings to be presented in this paper.

VI. IMPORTANT VARIABLE CLASSES

A number of important variables measured at three points in time can be derived from the Base-Year and First Follow-Up Questionnaires. They are briefly presented below.

<u>Time 1 (Spring 1972)</u>	<u>Time 2 (October 1972)</u>	<u>Time 3 (Fall 1973)</u>
Self-esteem	Activity state	Activity state
Control of environment	Participation in	Self-esteem
Goal orientations	college financial	Control of environment
Educational aspirations	aid program	Goal orientations
Educational expectations		Educational aspirations
Plans for coming year		Educational expectations
Plans for financial aid		Plans for coming year

Considerable effort was undertaken to insure that detailed educational and occupational activity state information would be available for defining a large number of meaningful activity states. For example, critical missing activity state information on a returned First Follow-Up Questionnaire prompted a telephone call to the respondent requesting the missing information. Constructs such as goals, self-esteem, and control of environment were measured by psychological scales, many of which were specially constructed for NLS.

The Time 1 variables can be related to the Time 2 variables [e.g., plans (Time 1) versus activities (Time 2)]. The Time 1 variables can also be related to the Time 3 variables which are measuring the same construct [e.g., self-esteem (Time 1) versus self-esteem (Time 3)]. The activity state status at Time 2 can also be related to the Time 3 variables, especially activity states at Time 3. We can also present transition matrices between Time 1 and Time 3 variables for subpopulations defined on the basis of activity states occupied at the intervening Time 2. The general strategy of defining subpopulations on the basis of what

happened to the respondent at Time 2 between Time 1 and Time 3, and thus doing separate cross tabulations for these subpopulations between Time 1 and Time 3 measures, can be used to get some preliminary answers to important questions. For example, what effect does dropping out of college have on self-esteem, plans, and aspirations?

Various transition matrices can also be defined on the basis of interesting subpopulations. Subpopulations currently under specific study are based on six critical personal background factors that are discussed in the next section of this paper. Constructing separate transition matrices for various subpopulations of seniors can give some insight on the role of personal background factors in fulfilling plans and activity state transitions.

VII. CLASSIFICATION VARIABLES

There are six basic classification variables that are now being used singularly and jointly to define basic subpopulations of interest to most everyone. The variables are sex, high school program, race, geographical region, ability, and socioeconomic status.

Sex has, of course, two categories: male and female. High school program was defined by three categories: general, academic, and occupational-vocational. Race was defined by four categories: white, black, Spanish American, and other (e.g., Oriental, American Indian, etc.). The NLS sample was, as previously noted, a national probability sample and respondents were classified into the following regions: Northeast, North Central, South, and West.

There were 15,859 base-year respondents who took the Test Battery (developed by the Educational Testing Service) in the spring of their senior year (1972) in high school. This ability test consisted of six subtests for which separate scores were available. The subtests were: Vocabulary (15 items, 5 minutes), Picture Number (measure of associative ability--30 items, 10 minutes), Reading (20 items, 15 minutes), Letter Groups (measure of inductive reasoning--25 items, 15 minutes), Mathematics (25 items, 15 minutes), and Mosaic Comparisons (measure of perceptual speed and accuracy--116 items, 9 minutes).

These six subtests were intercorrelated, the resultant intercorrelation matrix factor analyzed, and the factors were rotated to a varimax criterion. The factor analysis supported the decision to construct a composite score measuring general ability by forming an equally weighted linear composite of Vocabulary, Reading, Letter Groups, and Mathematics. Each subtest was standardized with a mean of 50 and a standard deviation of 10 before entering the composite. This continuous ability score was then divided into three categories: lower quartile, middle two quartiles, and upper quartile. The cutting points defining the lower and upper quartiles were based upon the ability distribution estimated using sample weights. This means that the cut points were based upon the estimated population distribution of ability among 1972 high school seniors rather than the unweighted sample distribution. If low socioeconomic students were oversampled, as they were in this study, then it would be expected that more than 25 percent of the respondents would fall into the lower quartile. This turned out to be the case.

The socioeconomic status index (SES) was based upon a composite score composed of five components: father's education, mother's education, parents' income, father's occupation, and a household items index. All of these components were continuously scaled variables. The overall procedure for constructing the composite SES index was rather complex and is summarized below.

Each of the five components was standardized in regard to both mean and standard deviation. Missing components were imputed by using the appropriate component mean of the subpopulation of which the respondent was a member. The subpopulations were defined by cross classifying race, high school program, and aptitude. An SES score was computed by averaging the available standardized components. However, in order for an SES index to be computed, the respondent had to have at least two non-imputed components available. The continuous SES index was then divided into three categories: lower quartile, middle two quartiles, and upper quartile. The cutting points defining the lower and upper quartiles were based upon the SES index estimated using sample weights. Since low SES respondents were oversampled, more than 25 percent of the sample respondents fell into the lower quartile.

VIII. RESULTS

This paper briefly presents three sets of selected preliminary findings based upon simple unweighted tabulations. The sets are: (1) fall 1973 status; (2) spring 1972 plans versus October 1972 activities; and (3) October 1972 activities versus October 1973 activities.

A. Selected Preliminary Findings Regarding Fall 1973 Status

The difference between black females and white females taking academic courses in two- or four-year colleges is much smaller (37 percent versus 40 percent, respectively) than the corresponding difference for black males and white males (32 percent versus 46 percent, respectively).

One of the most interesting tentative findings is that within each of the three ability levels, blacks have a significantly higher college attendance rate than whites. The contrasts are 25 percent versus 14 percent, 54 percent versus 38 percent, and 83 percent versus 70 percent for the low, middle, and high ability groups, respectively, with the first percentage in the contrast representing black attendance rates. The same trend is evident for black and white differences for the low and middle SES categories. These figures do not yet demonstrate equality of educational opportunity since a significant percentage of blacks may be attending postsecondary schools with shortages of physical facilities and trained instructors. The overall college attendance rates for blacks, as contrasted to whites, is lower because of a higher concentration of blacks in the lower SES and ability levels.

There was a strong relationship between both ability and SES and the probability of a female being a homemaker. High ability and high SES females had substantially lower probabilities of being a homemaker (16 and 15 percent, respectively) than low ability and low SES females (38 and 40 percent, respectively). Apparently, higher ability and higher SES females have more opportunities open for them in terms of career development other than marriage and homemaking. There are probably social-psychological and cultural variables also at play here.

Approximately 9 percent of the respondents to the First Follow-Up were on temporary layoff, looking for work, or waiting to report to work in the fall of 1973. The sex difference in respect to unemployment was small (less than 1 percent). However, there were large differences between ability groups, SES groups, and racial groups. The low ability group had 13 percent in this category as contrasted to a percentage of less than 5 percent for the high ability group. SES showed the same relationship as ability with over 12 percent of the low SES respondents being unemployed and only slightly over 5 percent of the high SES respondents being unemployed. Blacks had a 16 percent unemployment rate, while whites had a 7 percent unemployment rate. Some of these differences could be due to the fact that high ability and high SES respondents are out of the labor market because they are going to school. However, these percentages are certainly disturbing because virtually all of these sample members are high school graduates and should have developed the skills necessary for gainful employment. Problems in our economy, of course, are also playing a significant role here. The people that suffer most in a faltering economy are the young and inexperienced.

Approximately 74 percent of the seniors indicated in the fall of 1973 that they are expected to continue their education. Educational expectations were strongly related to ability, SES, high school program, sex and race in the expected manner. Seniors who could be categorized either as low aptitude, low SES, female, or in a vocational-technical program had lower educational expectations than students who could be categorized as high aptitude, high SES, male, or in an academic curriculum. It is interesting to note that over 18 percent of the low ability students actually expected to get a B.A. or higher degree, an expectation which seems quite unrealistic. In fact, another 42 percent expected to go either to a two-year college or vocational-technical school. Another interesting finding is that both black females and black males had higher expectations in regard to postsecondary education than their counterparts, white females and white males. However, more blacks expected to go to a two-year college as compared to whites. Approximately 90 percent of middle ability blacks expected to go beyond

high school as contrasted to 72 percent of middle ability whites. Over 28 percent of the middle ability blacks expected to get a Master's or Ph.D. degree. Seventy-six percent of the low SES blacks expected to go beyond high school as contrasted to 52 percent of the low SES whites. Whether or not these expectations are realistic will be determined from analyses of later follow-ups now in progress or in the planning stages. The effects of thwarted expectations on future attainment and satisfaction will also be of interest.

B. Spring 1972 plans versus October 1972 activities

Eighty-two percent of respondents who planned in the spring of 1972 to go to a four-year college were enrolled in that status in October of 1972. Over 9 percent were enrolled part or full time in a two-year college or vocational-technical school, and less than 5 percent of this group ended up working full time.

The plans for those seniors who planned to go to a two-year college or a vocational-technical school had a much lower probability of being fulfilled. Only 63 percent of those planning to go to a two-year college actually went and only 47 percent of those planning to go to a vocational technical school actually went by October 1972. A substantial proportion (40 percent) of those planning to work full time couldn't find work, got married (if female), went in the military, or went to school.

Many students may begin to think about college two or three years before high school graduation, so a majority of those young people who were planning on going to a four-year college probably had been accepted in college by the spring of 1972. A substantial number also probably had been planning on attending a four-year college for a significant period of time and had a commitment to college. On the other hand, probably a substantial number of high school students make up their mind in regard to work early in high school. Over 13 percent of the seniors who were planning on working full time actually ended up in school in October 1972. However, only a little over 2 percent of them actually went to a four-year college full time. For each planning group, we intend to examine the characteristics of those whose plans were fulfilled versus those

whose plans were not fulfilled. What roles do high school programs, the counseling process, ability, and financial status play in matching plans to outcomes? What changes in self-concept, aspirations, expectations, and goals take place as a result of these unfulfilled plans?

1. Relationship of ability to plan fulfillment

The plans for low ability respondents were considerably less fulfilled than the plans for high ability respondents. Only 57 percent of low ability seniors who planned to go to a four-year college actually were enrolled as such in October 1972, while 90 percent of high ability students fulfilled these same plans. We might have expected the plans of those low ability respondents who wanted to go to a two-year college or vocational-technical school to have a reasonable probability of being fulfilled. However, this is not even the case as only 53 percent of those planning on attending a two-year college actually did and only 35 percent of those planning on attending a vocational-technical school actually did. The corresponding percentages for the high ability group were 66 and 56 percent, respectively. There seem to be rather clear-cut implications here for the guidance function and program planning in high school. The higher ability respondents seem to be able to plan more realistically, at least in respect to early activities.

2. Relationship of socioeconomic status to plan fulfillment

The correspondence between plans and activities for each of the three SES levels followed the same trend as the ability results discussed previously. For high SES respondents, 90 percent of those planning on going to a four-year college fulfilled these plans, while the corresponding percentages for the middle and low SES groups were 80 and 70 percent, respectively. The same pattern of differences between the three SES groups were found for those planning on attending a two-year college and a vocational-technical school.

There were no major differences between the three SES groups in regard to fulfilling work plans, although 20 percent of the

low SES respondents planning to work full time in October 1972 were actually doing something else besides work or study.

3. Relationship of race to plan fulfillment

Blacks were less likely to fulfill their plans compared to whites. Seventy percent of blacks planning on going to a four-year college and 38 percent of blacks planning on working full time fulfilled their plans. The corresponding percentages for whites were 85 and 64 percent, a considerable difference. Blacks were also substantially less likely than whites to fulfill their plans for attending both two-year colleges or vocational-technical schools. Twenty-nine percent of blacks who planned to work full time were actually doing something else besides either working or studying.

4. Relationship of sex to plan fulfillment

Sex differences in plan fulfillment were not nearly as great as differences between racial, ability, or SES groups. Females were more likely to fulfill their plans for vocational-technical training and somewhat less likely to fulfill their plans for working full time in October 1972.

5. Relationship of high school program to plan fulfillment

Students who were in high school academic programs were most likely to fulfill their four-year college plans (86 percent), while vocational students were least likely to fulfill their four-year college plans (57 percent). Academic students were most likely to fulfill their plans for attending a two-year college (66 percent), while vocational students were again least likely (58 percent). Academic students were even more likely to fulfill their plans for attending vocational-technical schools (60 percent), and general program students were least likely (39 percent). Vocational students were, however, more likely to fulfill their working full time plans (64 percent), and academic students were least likely (53 percent) to fulfill their work plans.

It must be kept in mind, however, that the academic programs have a relatively high proportion of high SES and high ability students and the vocational programs have a relatively high proportion of low SES and low ability students. We have just seen that these characteristics are significantly related to plan fulfillment. Before any tentative conclusions are drawn with respect to program influences on planning, one would have to adjust for background differences such as these, as well as local economic conditions.

6. Relationship of region to plan fulfillment

There were regional differences in regard to fulfilling short-term occupational and educational career plans. Respondents residing in the Northeast were most likely to fulfill their four-year college plans, and respondents residing in the South were least likely to fulfill these plans. Seniors planning to work full time were more likely to fulfill these plans if they were seniors in the Northeast. They were least likely to fulfill their work plans if they finished high school in the West. These differences in the fulfillment of plans across the four regions could be due to a number of sources. First, there are clearly ability and SES differences among these regions, and these two factors, as we have seen, are strongly related to the fulfillment of plans. There are also certainly overall differences in economic conditions, industrial development patterns, and the availability and type of postsecondary institutions.

We have seen that a number of background characteristics are substantially related to the fulfillment of plans. The next step is to further characterize and contrast those groups whose plans were not realized, especially in respect to policy-oriented factors such as knowledge of and participation in financial aid plans, and high school experiences including vocational training. We shall also want to look at the impact of plan non-fulfillment on goals, expectations, future activities, and satisfaction.

C. October 1972 Activities versus October 1973 Activities

Overall, 80 percent of those students enrolled in a four-year college full time in October 1972 were in the same status in October 1973. The corresponding percentage for full-time two-year college students and vocational-technical students are 59 and 32 percent, respectively. The lower persistence percentage for two-year college and vocational-technical students could be due to a number of factors:

(1) some students might be in a one-year program; (2) their ability level is lower relative to four-year college students; (3) they are less committed to higher education than four-year students; and (4) they are more likely to have financial problems. Further analysis of the data is needed to gain more insight into the factors underlying these lower persistence rates.

Seventy-two percent of those working full time in October 1972 were also working full time in October 1973, but 13 percent of those working full time in October 1972 were going to school in October 1973. The group working in October 1972 but going to school in October 1973 would be an interesting one to characterize and analyze through time. What effect does dropping out of educational activities for a year have on future activity state paths and career and educational satisfaction?

1. Relationship of Ability to Activity State Transitions

The highest dropout rate for full-time study across all three types of institutions is, as expected, for the low ability group. However, it is surprising that the dropout rate from four-year colleges is only 29 percent for this group. It would be interesting to compare the low ability dropouts with those low ability students remaining in college. Are the latter more likely to have planned to go to college? Do they have somewhat more ability than the low ability dropouts? Are their goals and expectations more stable? Similar analyses should be done for the middle and high aptitude level dropouts.

Low ability students who were working full time in October 1972 were most likely to be working full time in October 1973 (76 percent), while high ability students who were working full time in

October 1972 were least likely to be working in October 1973 (59 percent). A substantial percentage (26 percent) of the high ability groups who were working in October 1972 were going to some type of school full or part time in October 1973.

2. Relationship of SES to Activity State Transitions

SES has about the same relationship as ability in regard to continuance in a four-year college full time. The continuance rates are 84, 78, and 74 percent, respectively, for high, middle, and low SES groups. Like ability, a considerable proportion of high SES individuals work their first year out of high school and then go to college (24 percent). The corresponding percentages for middle and low SES were 13 and 7 percent, respectively. The middle and low SES groups might be working to save money and go to school while the high SES individuals might just be taking a year off from academics. It will be interesting to look at the characteristics of these groups.

The role of financial problems for the low SES group dropping out should be fully explored. The policy implications here are enormous if a significant number of these students are dropping out because of financial rather than motivational or achievement problems.

The relationship of SES to continuation in full time work status was similar to that found for ability. That is, 75 percent of low SES full time workers in October 1972 were in the same status in October 1973. Another 18 percent who worked full time in October 1972 were either working part time, looking for work, in the military, or--in the case of females--married and not working.

3. Relationship of Race to Activity State Transitions

The postsecondary school dropout rates for blacks and whites are not substantially different, although higher for blacks. In general, there seemed to be less stability (more transitions) for blacks as contrasted to whites.

4. Relationship of Sex to Activity State Transitions

Both males and females have about the same persistence rates in regard to full time study in two- or four-year colleges. However, the female persistence rate in vocational-technical schools is considerably less (25 percent versus 44 percent for males) due probably to the fact that females have more of a tendency to enroll in vocational courses of shorter duration (e.g., cosmetology, stenography, etc.). Females working full time in October 1972 are less likely than males to be working full time in October 1973. This is probably to a large part due to females getting married and dropping out of the labor market.

5. Relationship of High School Programs to Activity State Transitions

Seniors who took an academic high school program had the highest persistence rates in regard to four-year college full time study (83 percent) while students who were in vocational programs had the lowest persistence rates in four-year colleges (65 percent). The corresponding persistence rate for students who were in a general program was 73 percent. These differences in persistence could be due to at least three factors: differences in ability levels for the enrollees in the three types of programs, differences in skills necessary for the successful completion of college that are acquired in the three programs, and differences in SES distribution among the three programs.

Respondents in an academic high school program were also more likely to persist in a two-year college full time as compared to participants in vocational or general programs. The same trend was also true in respect to vocational-technical programs. We should make these high school program comparisons after adjustment for the effects of SES, ability, and other important factors and see if there still is a relationship between type of program and persistence in college.

Academic students who were working full time in October 1972 were more likely to be in other activity states in October 1973

(39 percent) as contrasted to vocational students where 24 percent were in different activity states.

In any event, these results have clear-cut implications for both high school programs and the counseling process that lead students into particular programs. What are the characteristics of students who are enrolled in a general program and who go to college, contrasted to those enrolled in an academic program and who go to college? What are the characteristics of college dropouts in both of these programs?

6. Relationship of Region to Activity State Transitions

There were significant differences among the four regions in respect to transition matrices. Persistence rates in four-year colleges tended to be highest among respondents from high schools in the Northeast (84 percent) and lowest in the West (77 percent). Work persistence was highest in the South (74 percent) and lowest in the West (66 percent). As noted previously, there are differences among these regions in respect to ability, socioeconomic status, as well as educational and occupational opportunities. These differences among regions could certainly explain many of the differences between the regional transition matrices.

IX. IMPLICATIONS AND FUTURE PLANS

We have summarized some information on short-term plans and short-term attainment. We have also seen that the fulfillment of plans and the persistence in certain activity states are highly related to the person's background characteristics. Many of these findings are expected, and many others have been repeatedly mentioned throughout the years in the research literature. What makes these data especially important is that rather precise population estimates of both proportions and absolute numbers can be ascertained. The estimated proportions and absolute numbers shortly to be generated have policy implications for program planning at the high school, postsecondary school,

and the private and public industry sectors of the economy. They estimate the short-range flow of high school seniors through the educational and occupational structure from original planning states through activity state status roughly one and one-half years out of high school. Just as important, many of the subgroups that we have been discussing can be regarded as target groups or special interest groups to be followed up with more detailed and refined analysis concerning, for example, the impact of high school experiences, including counseling experiences, and the impact of federal, state, and private financial aid programs on the status of such groups.

We are now in various stages of progress in the preparation of special reports. Some of these reports will cover in more detail and depth the transition analyses discussed briefly here. Other reports will be aimed specifically at the impact of financial aid, the influence of high school experiences, and the prediction of activity state attainment and transitions.

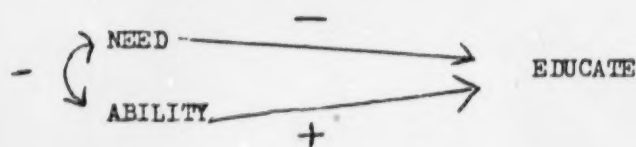
Future plans call for modeling the educational and occupational flow of 1972 high school seniors by constructing and analyzing rather elaborate path models of this process. In this way, the interplay and roles of various personal background factors, high school experiences, postsecondary school experiences, and federal programs can be estimated.

The logic implied in a simple path analysis model involving financial aid will be useful to present here for illustrating how the impact of a factor can be evaluated. The first step would be to examine the simple relationship between a student's lack of financial resources for continuing education or training beyond high school (NEED) and his activity state in either October 1972 or 1973 (EDUCATE). Without consideration of federal or other intervening variables, we would anticipate a negative relationship:

NEED —————> EDUCATE

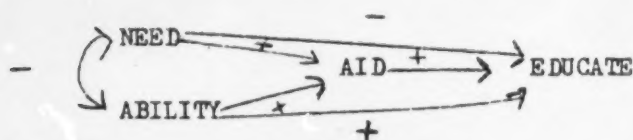
That is, students with high NEED scores would be less likely to be enrolled in educational or training programs in either time period.

The critical question in this analysis is whether the introduction of financial aid in the model would tend to lower the observed direct negative effect of NEED on EDUCATE. However, before taking this step, we should rule out (by controlling for) an alternative explanation for the NEED-EDUCATE relationship. This is the confounding effects of one's measured ability as based on past performance (ABILITY). Ability (which is presumed to be a partial measure of one's potential to succeed) often is used as a criterion for getting financial assistance, as well as for admission to various educational and training programs. It also quite probably is negatively associated with NEED (the relationship between SES and ability generally being found to be positive). Thus, the indirect paths between NEED, ABILITY, and EDUCATE could be accounting for a substantial part of the simple NEED-EDUCATE relationship. In other words, to examine properly the effects of financial aid or similar programs, it obviously would be desirable to control for ability. Therefore, the second step of the analysis would be designed to obtain path coefficients which consider NEED and ABILITY as exogenous variables (independent variables) and EDUCATE as the endogenous variable (dependent variable).



Having isolated the effects of ability, we would then introduce our measure of economic assistance (AID) as an intervening endogenous variable which might simply be a dicotomous variable that would dis-

tinguish the users and non-users of financial aid programs.



If financial aid programs are operating as intended, we should obtain significant and positive paths between NEED and AID and between AID and EDUCATE for both time periods. Moreover, the direct (negative) path coefficient between NEED and EDUCATE in this model should be smaller than that which we expect to find in the second model. If such results, in fact, are obtained, we would have an easily interpretable and direct estimate of the effects of financial aid programs. In the ideal case of a completely effective AID program, the direct path coefficient between NEED and EDUCATE would be zero, and the direct paths between NEED and AID and between AID and EDUCATE would be large.

Of course, the model could be expanded to include other aspects of the general problem, such as a student's postsecondary school plans and goals or his knowledge of funding sources. However, even in its basic form, the model would yield useful information, especially if replicated for specific subpopulations such as white males, white females, black males, and black females, and thereby producing a comparison of the relative effects of financial assistance for each of these groups.

Some preliminary tabulations of parents' income (a crude measure of financial need) with source of financial aid for respondents in postsecondary education during the 72-73 academic year yielded some interesting findings. A finding of major significance: although the proportion of individuals reporting financial aid of any sort--federal or non-federal--decreases as family income level increases(as would be expected),

and although those in postsecondary education from income levels of \$9,000 or above report federal support as frequently as they report nonfederal support, the proportions from income levels below \$9,000 with federal support exceed the proportions with non-federal support. These proportions also increase markedly as income goes down. For example, of those in postsecondary education from family income levels below \$3,000 more than half report federal aid, but only one-third report some form of non-federal aid. For those in the \$9,000-\$10,500 range, about one-third report federal and one-third report non-federal aid. For those in the income range of \$18,000 or above, only about one in seven report any kind of aid. Those who are in four-year institutions are much more likely to report federal aid than those in other kinds of postsecondary institutions. For example, more than two-thirds of those from families with incomes less than \$3,000 in four year institutions reported federal aid, while about four out of ten in this income category in two-year or vocational-technical schools reported federal aid.

Findings such as these are interesting and important in their own right since they give an indication of what types of students are getting what types of aid. Just as important, the findings prompt us to consider all types of aid programs jointly in the path models described earlier when evaluating any particular aid program. In addition, they tell us that models should be developed separately by type of school or that type of school should be considered in a more comprehensive model.

This paper has attempted to summarize as briefly as possible an overview of NLS from inception through preliminary analyses to future plans.